

Application No. 09/580,632
Amendment in response to July 14, 2004, Action

Attorney's Docket No. 0119-003

REMARKS

Claims 1-22 are pending. Claims 1-9, 13, 14, and 21 have been amended.

Claims 1, 3-8, 13, and 15-20 were rejected under 35 U.S.C. § 103(a) for obviousness over U.S. Patent No. 6,049,233 to Shurboff ("Shurboff"), and the remaining claims were rejected for obviousness over a combination of the Shurboff patent and IBM Technical Disclosure Bulletin XP-002104823 by Turner ("Turner"). These rejections should be reconsidered and withdrawn in view of the current amendments to all of the independent and some of the dependent claims. Neither Shurboff nor the combination of Shurboff and Turner teaches or even suggests all of the features recited in the claims as amended, and thus Shurboff and Turner are insufficient for a *prima facie* case of obviousness.

The claims as amended relate to sigma-delta modulators that generate divisional values for fractional-N dividers in phase-locked loops. In such devices and methods, out-of-band modulator noise may be folded back into the loop bandwidth by rectification due to different negative and positive slopes of the phase detector, thus resulting in an inferior noise performance compared to their integer-divide counterparts, such as those described in Turner. Applicants solve this problem by shifting the operating point so that both positive and negative phase differences will keep the phase detector operating in a linear region.

Contrary to the statements in the current Action, shifting the operating point as claimed is not found in Shurboff or Turner. In addition, Shurboff and Turner fail to teach or suggest a fractional-N phase-locked loop or the components or steps of such a loop, such as a sigma-delta modulator, as claimed.

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It is respectfully submitted that this application is now in condition for allowance, and an early Notice to this effect is respectfully solicited. If the Examiner has any questions, the undersigned attorney may be telephoned at the number given below. The Examiner may note that a Change of Correspondence Address is filed on the same day as this Amendment.

Respectfully submitted,



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